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Karyotypic status of shrews (*Sorex*) from Thrace, European Turkey

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The mountain range of Istranca (Yıldız Dağlari) is situated in the easternmost tip of the Balkan peninsula, between the Black Sea and the Sea of Marmara. The area represents the south-eastern distribution limit of the forest fauna in Europe. The geographic proximity of Bosporus, where a land bridge existed at the end of the Pleistocene (Hosey 1982), has evoked ideas of dispersal of certain mammals of Asian origin into the area of Thrace and adjacent parts of the Balkans. Şimşek (1986) proposed the presence of the Caucasian common shrew, *Sorex satunini*, and described a new subspecies *S. satunini sultanae* from Istranca. *Sorex araneus* was not included, consequently, in the current list of the extant mammals of Turkey (Doğramaci 1989), and the Istranca Mts. did not appear within the European distribution range of the species (Hausser et al. 1990). Similarly, the presence of another Caucasian shrew, *S. volnuchini*, could be presumed in the easternmost parts of the Balkans.

In this study, we have examined the karyotype of shrews of the genus *Sorex* from Istranca to reveal their actual taxonomic status. The chromosomes represent a particularly appropriate character for such a study, because distinct differences in the karyotype structure are known both between *S. araneus/S. satunini* and *S. minutus/S. volnuchini*, respectively (Zima and Král 1984, for a review).

The karyotype was examined in six shrews collected in May 1992 and August 1996. The material studied included three common shrews (2 F, 1 M) and three lesser shrews (1 F, 2 M). All the specimens originated from Veliki Köprüsü bridge, approximately 8 km SW of Demirköy, Kirklareli District, 27°30′ E 41°40′ N (the type locality of *Sorex satunini sultanae*). Chromosome preparations were made by a standard method of direct treatment of bone marrow and spleen cells. The preparations were aged and then G-banded. The specimens examined were preserved as skulls and skins, or in alcohol, in the collection of the Department of Zoology, Charles University in Prague.

The karyotype of all the lesser shrews contained 42 chromosomes. The chromosome complement was identical to that reported in a number of populations of *S. minutus* in continental Europe and Asia (Zima and Král 1984).

The karyotype of all the common shrews contained 24 autosomes and the composite sex chromosomes XX or XY_1Y_2. In the autosomal set, there were two large biarmed pairs (arm combinations af, bc), one small metacentric pair (tu), and three biarmed Robertsonian pairs (ik, jl, mn). The other autosomes were acrocentric (Fig. 1). This karyotype demonstrates that the studied individuals belong indisputably to *S. araneus*. However, the composition of the Robertsonian fused autosomes is quite unique among the *S. araneus* populations studied so far (Zima et al. 1996). Therefore, we describe here a new chromosome race.

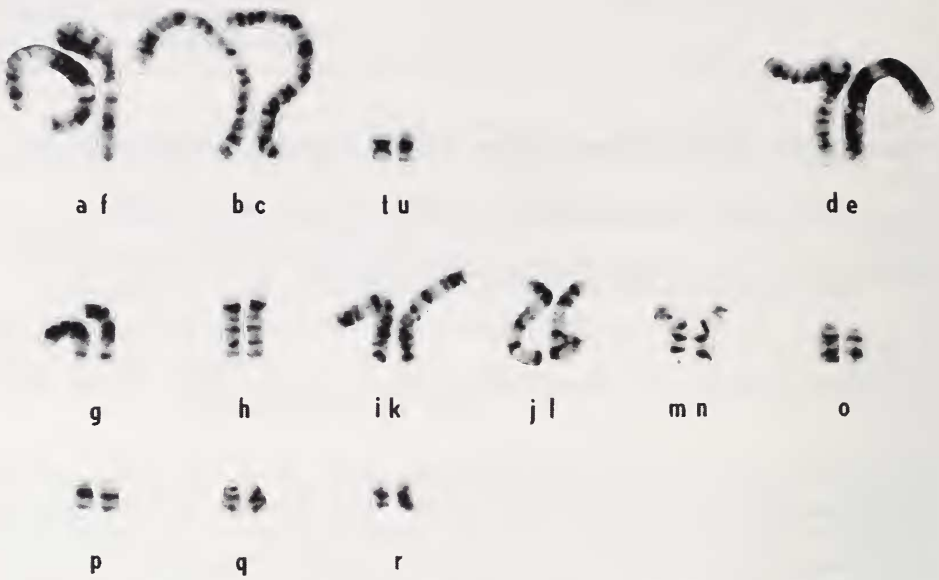

Fig. 1. The G-banded karyotype of a female of *Sorex araneus* from Istranca.

Istranca race: XX/XY_1Y_2, af, bc, g, h, ik, jl, mn, o, p, q, r, tu;

Type locality: Veliki Köprüsü bridge, Istranca Mts., Thrace, European Turkey, 27°30′ E 41°40′ N;

Distribution: The type locality, probably suitable habitats in higher altitudes all over the Istranca Mts.

The position of the Istranca race within the known karyotype races of *S. araneus* is apparently rather isolated. Most of the populations studied in Europe have a karyotype with the Robertsonian metacentrics gm, hi, jl, and they are usually included into the Western European Karyotypic Group, WEKG (Searle 1984; Wójcik 1993). The isolated position of the Istranca race in Europe seemed to be confirmed also in a mt DNA study (Mirol 1996).

Until now, the ik and mn metacentrics were found, along with other autosomal fusions, only in certain races described in north-eastern Poland, and included in the Eastern European Karyotypic Group, EEKG (Wójcik 1993; Fedyk 1995), and in four Siberian races (Král and Radjabli 1974; Aniskin and Volobouev 1981). It is obviously improbable that the fusions ik and mn could spread in Thrace through dispersal from north-eastern Poland or even from Siberia. The areas between Istranca and Poland are populated by races with karyotypes belonging to the WEKG (Zima et al. 1996). The finding from Istranca thus strongly indicates the real existence of the independent origin of the same autosomal fusions in different geographical populations of *S. araneus*.

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